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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,235	12/20/2001	Takeshi Matsunaga	111510	4205

25944 7590 10/04/2005

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EXAMINER	
LEWIS, DAVID LEE	
ART UNIT	**PAPER NUMBER**
2673	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/022,235	MATSUNAGA ET AL.	
	Examiner	Art Unit	
	David L. Lewis	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *9/28/05*.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gates et al. (6531997 B1) in view of Inoue (JP 401086116A) and Evans (3612758).

As in claim 1, Gates et al. teaches of a image display device comprising: an image display medium which includes a display substrate, a rear substrate, **column 13 lines 50-52**,

display side electrodes which are linearly disposed at the side of the display substrate in a predetermined direction, **column 14 lines 4-11 and 50-53, column 26 lines 1-13**,

rear side electrodes which are linearly disposed at the side of the rear substrate in a direction intersecting the predetermined direction, **column 14 lines 4-11 and 50-53, column 26 lines 1-13**,

and plural types of colored particles each having different charging characteristics, which are interposed so as to be movable between the display side electrodes and the rear side electrodes, **column 24 lines 5-25**;

and a voltage applying component by which a voltage is applied to the display side electrodes and the rear side electrodes both contributing to image display to generate there between a potential difference which triggers particle movement, **figure 3D item 4**,

and a voltage is applied to the display side electrodes and the rear side electrodes, in which at least one of the display side electrodes and the rear side electrodes do not contribute to image display, to generate there between a potential difference which is smaller than the potential difference which triggers particle movement, **figure 3F item 18, column 19 lines 33-45**.

However Gates et al. only implicitly suggests the existence of a second or display substrate, column 13 lines 50-53, **and does the explicitly teaches of** said display substrate by way of illustration.

Inoue et al. teaches of said display, and rear electrode, figure 1 item 1, in the same particle based display as taught by Gates, wherein said implicit **display substrate**

feature would have been obvious to the skilled artisan given its known use in the art as taught by Inoue et al., as found in claim 1.

Wherein as amended said language of "wherein a time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display" is not explicitly taught by Gates et al.. Said feature would have been obvious to the skilled artisan at the time of the invention in view of Evans.

Evans teaches of a driving technique in a display as claimed wherein time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display, column 6 lines 25-35. As shown in figure 3, Gates illustrates the voltage differential applied between the first and second electrodes, causing the particles to migrate. Gates illustrates the **result** of what is claimed and taught by Evans, wherein the voltages applied to the row and column electrodes may overlap in time period is known in the art. Therefore in figure 3F Gates teaches of a positive pulse addressing signal 16 preceding the negative pulse 18 so long as the negative pulse does not have sufficient amplitude to cause the particles to move, said signal/pulse being applied as claimed between the display and rear side electrode, in sequence. The delay between the positive and negative pulse can be non-existent, column 19 lines 20-25,

corresponding to the switching of Evans, which can be simultaneous or subsequently as known in the art.

Therefore it would have been obvious to the skilled artisan at the time of the invention to have time period of contribution and non contribution voltage application overlap because Evans suggests such a drive feature in a device as taught by Gates, having a second substrate as taught by Inoue et al., as found in claim 1.

As in claim 2, Gates et al. teaches of wherein the voltage applying component applies a voltage to the display side electrodes and the rear side electrodes such that a potential difference between the display side electrodes contributing to image display and the display side electrodes not contributing to the image display, figure 9A item Vcom=V/2, is smaller than a potential difference between the rear side electrodes contributing to the image display and the rear side electrodes not contributing to the image display, figure 9A item 102 = 0 or V.

As in claim 3, Gates et al. teaches of, further comprising a pre-voltage applying component which, before the voltage applying component applies a voltage, applies a pre-voltage to both the display side electrodes and the rear side electrodes so as to attract particles to be moved to the electrodes on which the particles are adhering, column 18 lines 5-15, column 28 lines 55-65, pre-addressing or blanking.

As in claim 4, Gates et al. teaches of, the pre voltage applying component applies the pre-voltage, in a case that a potential difference between the display side electrodes and the rear side electrodes, in which at least one of the display side electrodes and the rear side electrodes do not contribute to image display, exceeds a predetermined value when the voltage applying component applies a voltage, figure 9A item 102 = 0 or +V.

As in claim 5, Gates et al. teaches of, wherein a value of the voltage applied by the pre-voltage applying component is the same as a value of the voltage which corresponds to the potential difference which triggers particle movement, figure 3D items 2 and 4.

As in claim 6, Gates et al. teaches of, wherein the types of particles comprise positively charged black particles and negatively charged white particles, column 15 lines 44-46.

As in claim 7, Gates et al. teaches of the limitations as applied above to claim 1. Further, Gates et al. teaches and a voltage applying component by which a voltage is applied to the display side electrodes and the rear side electrodes both contributing to image display to generate there between a potential difference which triggers particle movement, **figure 3E item 14**,

and by which a voltage is applied to the rear side electrodes not contributing to image display to generate a potential difference which is smaller than the potential difference

which triggers particle movement between the rear side electrodes and the display side electrodes both not contributing to the image display, **figure 3E item 14**,

and between the rear side electrodes not contributing to the image display and the display side electrodes contributing to the image display, **figure 9A item 102 = 0, column 28 lines 30-65**.

Wherein a pre-addressing, addressing, pre-blanking, and blanking, voltage component are achieved by a voltage source having three voltage values 0, V/2, and V, which are applied between the Vcom on the display side and discrete electrodes on the rear side of the display. Figures 3, 9, and 10 illustrate as such. Said pre-addressing voltage conditions the display but does not cause a particle migration. Said addressing component can be applied before or after the non particle migration voltage component. Wherein as amended said language of "wherein a time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display" is not explicitly taught by Gates et al.. Said feature would have been obvious to the skilled artisan at the time of the invention in view of Evans. **Evans teaches of a** driving technique in a display as claimed wherein time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display, column 6 lines 25-35. As shown in figure 3, Gates illustrates the voltage differential applied between the first and second electrodes,

causing the particles to migrate. Gates illustrates the **result** of what is claimed and taught by Evans, wherein the voltages applied to the row and column electrodes may overlap in time period is known in the art. Therefore in figure 3F Gates teaches of a positive pulse addressing signal 16 preceding the negative pulse 18 so long as the negative pulse does not have sufficient amplitude to cause the particles to move, said signal/pulse being applied as claimed between the display and rear side electrode, in sequence. The delay between the positive and negative pulse can be non-existent, column 19 lines 20-25, corresponding to the switching of Evans, which can be simultaneous or subsequently as known in the art.

Therefore it would have been obvious to the skilled artisan at the time of the invention to have time period of contribution and non contribution voltage application overlap because Evans suggests such a drive feature in a device as taught by Gates, having a second substrate as taught by Inoue et al., as found in claim 7.

As in claim 8, Gates et al. teaches of wherein the voltage applying component applies substantially the same voltage to both the display side electrodes which contribute to image display and the rear side electrodes which do not contribute to image display, figure 3D items 2 and 4.

As in claim 9, Gates et al. teaches of further comprising a pre-voltage applying component which, before the voltage applying component applies a voltage, applies a

pre-voltage to both the display side electrodes and the rear side electrodes so as to attract particles to be moved to the electrodes on which the particles are adhering, column 18 lines 5-15, column 28 lines 55-65, pre-addressing or blanking.

As in claim 10, Gates et al. teaches of wherein the pre voltage applying component applies the pre-voltage, in a case that a potential difference between the display side electrodes and the rear side electrodes, in which at least one of the display side electrodes and the rear side electrodes do not contribute to image display, exceeds a predetermined value when the voltage applying component applies a voltage, figure 9A item 102 = 0 or +V.

As in claim 11, Gates et al. teaches of wherein a value of the voltage applied by the pre-voltage applying component is the same as a value of the voltage which corresponds to the potential difference which triggers particle movement, figure 3D items 2 and 4.

As in claim 12, Gates et al. teaches of wherein the types of particles comprise positively charged black particles and negatively charged white particles, column 15 lines 44-46.

As in claim 13, Gates et al. teaches of the limitations as applied above to claim 1. **Further**, Gates et al. teaches of. the method comprising the steps of applying a voltage

to the display side electrodes and the rear side electrodes both contributing to image display so that a potential difference generated there between corresponds to a potential difference which triggers particle movement, **figure 3E item 14**;

and applying a voltage to the display side electrodes and the rear side electrodes, in which at least one of the display side electrodes and the rear side electrodes do not contribute to image display, to make a potential difference generated there between smaller than the potential difference which triggers particle movement, **figure 3E item 12.**

Wherein a pre-addressing, addressing, pre-blanking, and blanking, voltage component are achieved by a voltage source having three voltage values 0, V/2, and V, which are applied between the Vcom on the display side and discrete electrodes on the rear side of the display. Figures 3, 9, and 10 illustrate as such. Said pre-addressing voltage conditions the display but does not cause a particle migration. Said addressing component can be applied before or after the non particle migration voltage component. Wherein as amended said language of "wherein a time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display" is not explicitly taught by Gates et al.. Said feature would have been obvious to the skilled artisan at the time of the invention in view of Evans.

Evans teaches of a driving technique in a display as claimed wherein time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display, column 6 lines 25-35. As shown in figure 3, Gates illustrates the voltage differential applied between the first and second electrodes, causing the particles to migrate. Gates illustrates the **result** of what is claimed and taught by Evans, wherein the voltages applied to the row and column electrodes may overlap in time period is known in the art. Therefore in figure 3F Gates teaches of a positive pulse addressing signal 16 preceding the negative pulse 18 so long as the negative pulse does not have sufficient amplitude to cause the particles to move, said signal/pulse being applied as claimed between the display and rear side electrode, in sequence. The delay between the positive and negative pulse can be non-existent, column 19 lines 20-25, corresponding to the switching of Evans, which can be simultaneous or subsequently as known in the art.

Therefore it would have been obvious to the skilled artisan at the time of the invention to have time period of contribution and non contribution voltage application overlap because Evans suggests such a drive feature in a device as taught by Gates, having a second substrate as taught by Inoue et al., as found in claim 13.

As in claim 14, Gates et al. teaches of further comprising a step of applying the pre-voltage, in a case that a potential difference between the display side electrodes and

the rear side electrodes, in which at least one of the display side electrodes and the rear side electrodes do not contribute to image display, exceeds a predetermined value when the voltage applying component applies a voltage, figure 9A item 102 = 0 or +V.

As in claim 15, Gates et al. teaches of wherein a value of the voltage applied by the pre-voltage applying component is the same as that which corresponds to the potential difference which triggers particle movement, figure 3D items 2 and 4.

As in claim 16, Gates et al. teaches of, wherein the types of particles comprise positively charged black particles and negatively charged white particles, column 15 lines 44-46.

As in claim 17, Gates et al. teaches of the limitations as applied above to claim 1. **Further**, Gates et al. teaches of, the method comprising the steps of: applying a voltage to the display side electrodes and the rear side electrodes both contributing to image display so that a potential difference generated there between corresponds to a potential difference which triggers particle movement, **figure 3E item 14**;

and applying a voltage to the rear side electrodes to generate a potential difference which is smaller than the potential difference which triggers particle movement between the rear side electrodes and the display side electrodes both not contributing to the

image display, and the display side electrodes contributing to the image display, **figure 3E item 12**.

Wherein a pre-addressing, addressing, pre-blanking, and blanking, voltage component are achieved by a voltage source having three voltage values 0, V/2, and V, which are applied between the Vcom on the display side and discrete electrodes on the rear side of the display. Figures 3, 9, and 10 illustrate as such. Said pre-addressing voltage conditions the display but does not cause a particle migration. Said addressing component can be applied before or after the non particle migration voltage component. Wherein as amended said language of "wherein a time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display" is not explicitly taught by Gates et al.. Said feature would have been obvious to the skilled artisan at the time of the invention in view of Evans. **Evans teaches of a** driving technique in a display as claimed wherein time period in which the voltage is applied that contributes to the image display overlaps with a time period in which the voltage is applied that does not contribute to the image display, column 6 lines 25-35. As shown in figure 3, Gates illustrates the voltage differential applied between the first and second electrodes, causing the particles to migrate. Gates illustrates the **result** of what is claimed and taught by Evans, wherein the voltages applied to the row and column electrodes may overlap in time period is known in the art. Therefore in figure 3F Gates teaches of a positive pulse addressing signal 16 preceding the negative pulse 18 so long as the

negative pulse does not have sufficient amplitude to cause the particles to move, said signal/pulse being applied as claimed between the display and rear side electrode, in sequence. The delay between the positive and negative pulse can be non-existent, column 19 lines 20-25, corresponding to the switching of Evans, which can be simultaneous or subsequently as known in the art.

Therefore it would have been obvious to the skilled artisan at the time of the invention to have time period of contribution and non contribution voltage application overlap because Evans suggests such a drive feature in a device as taught by Gates, having a second substrate as taught by Inoue et al., as found in claim 17.

As in claim 18, Gates et al. teaches of further comprising a step of applying the pre-voltage, in a case that a potential difference between the display side electrodes and the rear side electrodes, in which at least one of the display side electrodes and the rear side electrodes do not contribute to image display, exceeds a predetermined value when the voltage applying component applies a voltage, figure 9A item 102 = 0 or +V.

As in claim 19, Gates et al. teaches of wherein a value of the voltage applied by the pre-voltage applying component is the same as a value of the voltage which corresponds to the potential difference which triggers particle movement, figure 3D items 2 and 4.

As in claim 20, Gates et al. teaches of wherein the types of particles comprise positively charged black particles and negatively charged white particles, column 15 lines 44-46.

Response to Arguments

2. **Applicant's arguments filed on 5/9/2005 have been fully considered but are not persuasive.** Applicant argues Gates or Evans cannot provide two different potentials occurring simultaneously. Applicant argues the switch of Evans does not generate two potentials as shown in figure 6 of the Applicant's invention, as evidenced by the Application. Examiner disagrees. The switch of Evans as shown is figure 4 is a simplified view of logic circuits and transistors used to address the panel in order to process numerous types of input data, column 6 lines 5-15. Further Evans for instance can apply switching of S1 and S2 simultaneously or subsequently to S3 and S4, which can result in two different voltages overlapping with an applied time period. A first voltage as a result of S1/S2 overlaps in time with a second voltage as a result of S3/S4 to produce an electric field. Evans can create the Applicants fields E1 and E2 by switching the logic circuits and transistors used to address the panel by switching S1/S2 simultaneously or subsequently to S3/S4 for two different row addressed matrix locations. The corresponding electric fields will be as a result of the electric potentials applied to the corresponding pixel electrodes. Further what Evans may not teach is taught by Gates in view of Inoue. Wherein the simultaneously or subsequently voltage

application of Evans is used in Gates, given the voltage application taught by Evans is known in the art and applicable to the device of Gates. Rejection Maintained.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L Lewis whose telephone number is 571 272-7673. The examiner can normally be reached on M, T, W, TH, F. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571 272-7681. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-4700.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
or faxed to:
(703) 872-9314 (for Technology Center 2600 only)
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

September 28, 2005

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600